Newport News Nuclear BWXT-Los Alamos, LLC and
United States Department of Energy, Environmental Management, Los Alamos Field Office
Sampling and Reporting Plan for Per- and Polyfluoroalkyl Substances in Storm Water
December 6, 2021

INTRODUCTION

Certain per- and polyfluoroalkyl substances ("PFAS") are toxic and can pose hazards to human health and the environment. PFAS have been detected in nearly all environmental media; however, there is very limited data on stormwater discharges of PFAS into the environment, in part because relatively few facilities have National Pollutant Discharge Elimination System ("NPDES") permit limits or monitoring requirements for PFAS, even though perfluorinated compounds are used in industrial activities such as metal plating and firefighting activities, are a common ingredient in many applications, and have been in use since the 1940s.

Monitoring for PFAS helps provide information about whether PFAS are present in storm water discharges and where they are present to better control and mitigate these toxic pollutants in the environment. Where PFAS are found in the environment, they can also be found in aquatic life, wildlife, and humans. Newport News Nuclear BWXT-Los Alamos, LLC ("N3B") and the United States Department of Energy, Environmental Management, Los Alamos Field Office ("DOE") will conduct PFAS sampling and reporting in accordance with this document.

This document constitutes the Sampling and Reporting Plan ("SARP") for PFAS in storm water, as described in the Settlement Agreement regarding N3B's and DOE's Petition for Review of the State Certification of Los Alamos National Laboratory Individual Storm Water NPDES Permit No. NM0030759, filed December 30, 2020. N3B and DOE developed the SARP, with collaboration and concurrence from the New Mexico Environment Department-Surface Water Quality Bureau ("NMED-SWQB"). N3B and DOE will implement this SARP pursuant to the Settlement Agreement.

OBJECTIVE

N3B and DOE will monitor PFAS in storm water runoff from representative areas of Los Alamos National Laboratory ("LANL") to provide an evaluation of the presence of certain PFAS in the major watersheds within LANL.

MONITORING PLAN

N3B and DOE will monitor and report PFAS concentrations in storm water according to the following:

- Monitoring Locations: Fifteen monitoring locations set forth in Table 1 and Figure 1.
- Number of Samples: Two samples will be collected from each monitoring location over four years. If hydrologic and climatological conditions prevent the collection of samples from a location, N3B and DOE will document any attempts made to collect samples from each sampling location in the annual PFAS data report submitted to NMED-SWQB.
- Timeline: N3B and DOE will begin the multi-year execution of this SARP during monitoring year 2022 (i.e., April 1, 2022). This SARP is complete when all samples are collected, or four years have passed, whichever occurs first.

- Analytical Methods: Samples will be analyzed by an accredited lab pursuant to modified EPA Method 537.1 for all PFAS analytes tested by this method. However, if the new EPA draft Method 1633 (EPA 2021), "Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS" [1] is readily available for PFAS analysis by accredited labs within 21 days after initial sample collection, then samples will be analyzed using the new EPA draft Method 1633 for all PFAS analytes tested by this method instead.
- Reporting: N3B and DOE will submit an annual PFAS data report to the NMED-SWQB Point Source Program Manager by January 31st after each sampling year (e.g., January 31, 2023 for the 2022 sampling season, etc.). In the annual report, N3B and DOE will detail the attempts made to collect a sample, including reasons why the sample could not be collected, and total samples collected to date. N3B and DOE will validate the PFAS data in accordance with N3B and DOE administrative procedures. The PFAS data will be validated within one month of receiving the final analytical report for the sampling season from the analytical lab. N3B and DOE will upload PFAS data to Intellus within one week of validation.

SAMPLING AND DATA TECHNIQUES

Storm water sampling will be conducted using Teledyne ISCO automated samplers in accordance with N3B and DOE standard operating procedures ("SOPs"), including an N3B and DOE PFAS-specific SOP for storm water sampling, and the California State Water Quality Control Board-Division of Water Quality's PFAS Sampling Guidelines for Non-Drinking Water (September 2020). Sampling protocols will consider bottle selection, sample preservation, shipping, storage, and hold times relevant to PFAS and the analytical method. Storm water monitoring locations are targeted to be inspected for samples within 24-hrs of a precipitation threshold or remote telemetry unit being triggered.

Samples will be analyzed by off-site environmental laboratories that provide quality assurance plans ("QAPs"). Laboratory QAPs include SOPs for creating laboratory duplicates for analysis. Off-site laboratories are accredited by the National Environmental Laboratory Accreditation Conference and have successfully passed a DOE Consolidated Audit Program audit that includes N3B and DOE participation. Data validation will be completed in accordance with N3B and DOE administrative procedures.

[1] https://www.epa.gov/cwa-methods.

Table 1:
Per- and Polyfluoroalkyl Substances Monitoring Locations*

No.	SMA	Watershed	Major Watershed
1	A-SMA-2.7	Ancho Canyon	Ancho Canyon
2	CHQ-SMA-5.05	Chaquehui Canyon	Chaquehui Canyon
3	LA-SMA-5.01	Los Alamos Canyon	Los Alamos/Pueblo Canyon
4	LA-SMA-4.2	Los Alamos Canyon	Los Alamos/Pueblo Canyon
5	LA-SMA-6.32	Los Alamos Canyon	Los Alamos/Pueblo Canyon
6	M-SMA-12.92	Mortandad Canyon	Mortandad Canyon
7	M-SMA-3	Mortandad Canyon	Mortandad Canyon
8	PJ-SMA-5	Pajarito Canyon	Pajarito Canyon
9	PJ-SMA-2	Pajarito Canyon	Pajarito Canyon
10	PJ-SMA-7	Pajarito Canyon	Pajarito Canyon
11	S-SMA-3.7	Sandia Canyon	Sandia Canyon
12	W-SMA-8	Water Canyon	Water Canyon/Canon De Valle
13	CDV-SMA-6.01	Canon De Valle	Water Canyon/Canon De Valle
14	W-SMA-2.05	Water Canyon	Water Canyon/Canon De Valle
15	W-SMA-9.5	Water Canyon	Water Canyon/Canon De Valle

*The monitoring locations were selected using a probabilistic (randomized) selection of SMAs by major watershed. The number of SMAs to be randomly selected within a watershed was weighted based on the number of actively monitored SMAs within the watershed (i.e., n <10 one SMA, 10<n<20 two SMAs, 20<n<32 three SMAs and n>32 four SMAs). This ensured fairly even representation of the seven major watersheds. Total population of SMAs was n=128 and is broken down by watershed as follows: Ancho Canyon n=4, Chaquehui Canyon n=7, Los Alamos/Pueblo Canyons n=31, Mortandad Canyon n=16, Pajarito Canyon n=28, Sandia Canyon n=8, Water Canyon/Canon de Valle n=34. Random numbers were generated using the random number generator function in Excel [=INT(RAND()*100] and the lowest randomly generated number(s) were selected for each major watershed.

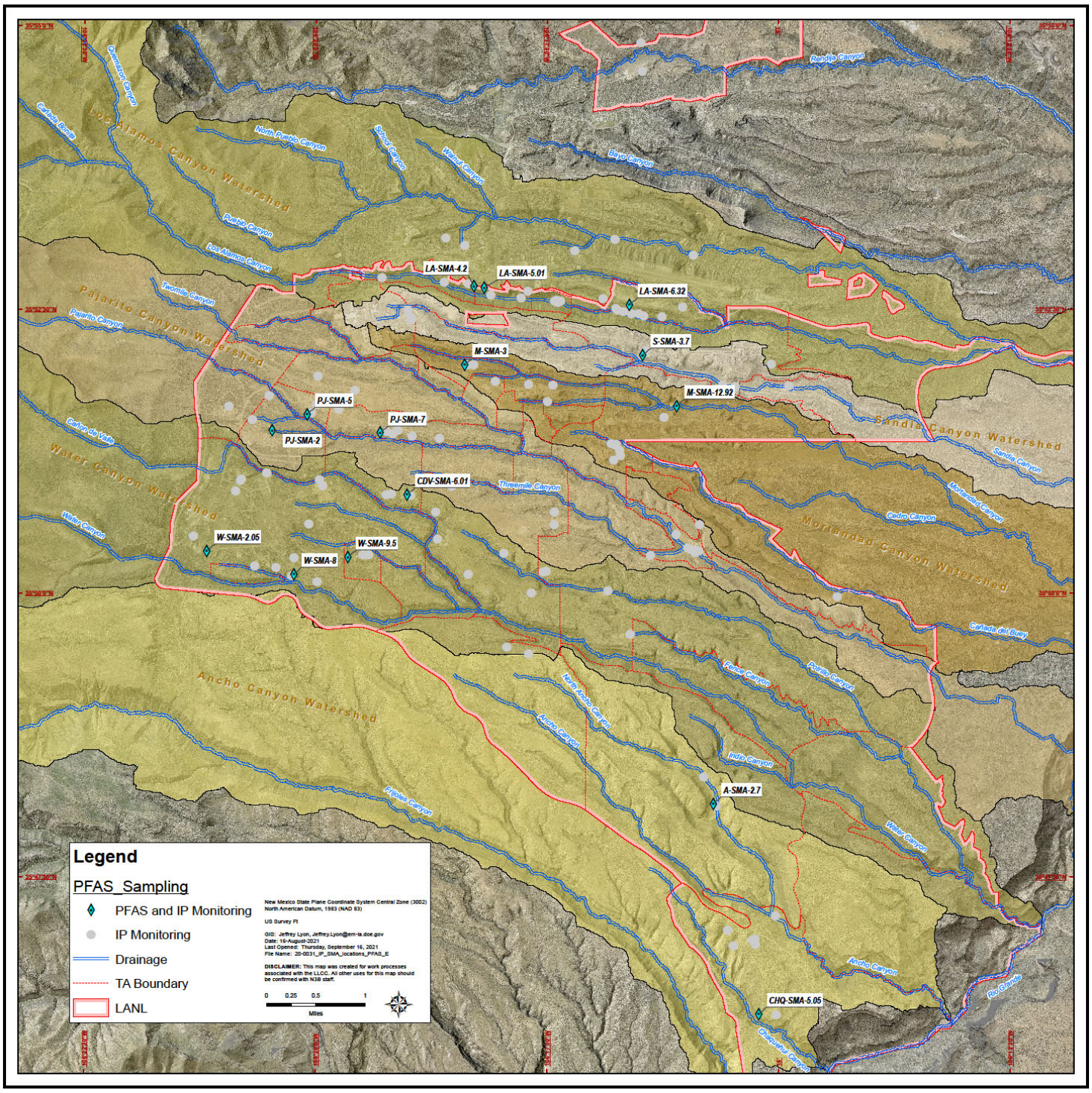

Figure 1. Per- and Polyfluoroalkyl Substances Monitoring Locations